

## PRODUCING HIGH QUALITY ALFALFA HAY PROFITABLY

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Producing high quality alfalfa hay profitably is a function of controllable and non-controllable influences. In a very broad overview these influences can be broken down into three areas; farm practices, the influence of nature, and marketing the product.

First, consider farm practices which are controlled by you, the farm manager, utilizing your education and experience. This is the area in which it is possible to exhibit the most control.

Second, the forces of nature which are more non-controllable. Higher than normal temperatures can force alfalfa to bloom more rapidly than normal. Cutting the hay in a shorter interval is a management tool that can be used to improve quality. Some growers in the San Joaquin Valley had part of their sixth cutting rained on this past season. In our case, the rain damaged hay was reduced in value from \$115.00 to \$38.00 per ton. It was a warm rain and I have not seen hay turn black with mold so rapidly in the past.

Third, consider the market value of alfalfa which is certainly effected by supply and demand, the value of other feed commodities and other factors which are non-controllable. There is a part of marketing, however, which you can exhibit some control over, that is the quality you offer for sale.

Farm practices used to establish and maintain quality alfalfa hay production vary by location, climate, type of soil, etc. Briefly the farming procedures for our area are:

Work the soil deep, cross ripping to approximately 34" depth.

Landplane or lazerplane to provide adequate irrigation control.

Using soil analysis as a guide we broadcast a dry phosphate material at 150 to 200 pounds of actual phosphate per acre. Additional phosphate is top dressed on established stands at 100 pounds of phosphate per acre each year.

In soils which exhibit extremely low potash levels, 180 to 240 pounds per acre of actual potash is applied.

One gallon of Balan herbicide per acre is disced in and incorporated to a depth of 2 to 3 inches prior to pulling borders at a 30 foot interval.

Alfalfa is seeded by air at a rate of 25 pounds per acre and covered using a light roller or harrow. We plant semi-dormant and moderately non-winter dormant varieties.

Dependent on the time of year, a newly seeded field is either brought up utilizing sprinkler irrigation (late summer, early fall, early spring), or is germinated with help of a timely rain.

Our herbicide program involves the use of a number of different products available for fall, winter or spring use on established stands of alfalfa. Contact or growth regulator herbicides are used to control early spring weed infestations on new stands of hay when necessary. There is an arsenal of materials available for fall and winter use. We sheep our fields during the fall and winter months removing top growth which aides in the penetration of some herbicides. The pros and cons of sheepling would probably generate a vigorous debate in itself;

for the record it is done in our area.

EPTC herbicide is water run in a split application after the first and after the third cuttings to help control summer weeds.

Weed control, as it relates to quality of alfalfa, might be considered a prime controllable influence. Weed infested hay is lower in value than "clean hay." Our cost figures indicate that up to \$46.00 per acre was spent in 1982 for weed control materials and labor. Our records indicate that the expenditure of \$46.00 per acre in 1982 with yield at 6.4 tons per acre in six cuttings results in a cost of approximately \$7.00 per ton for weed control. This herbicide cost was more than offset by an increased selling price of clean hay.

Irrigation can be one of the most difficult practices to control. Done improperly irrigation can weaken or destroy a stand. In the past we have utilized the neutron probe to establish water utilization patterns at different soil profile depths to assist in irrigation scheduling. This information has provided us with valuable history to be used as a guide for similar field types. Currently either a soil auger or soil probe is used to extract a sample of soil. By feeling the soil we estimate the moisture of the soil and determine the quantity of water to apply. Depending on the length of run and soil type, we generally irrigate in 8 to 12 hour sets; some fields are irrigated twice between cuttings, others only once.

Insect control is practiced as necessary.

Cutting, raking and baling operations certainly relate to quality. Raking and baling is done with emphasis on reducing bleaching and leaf drop.

Our hay is cut on an interval of 28 days or less; with the exception of early fall cuttings being 28 to 32 days. Generally once the sequence of cutting fields is established it varies only slightly. Changes occur where one variety might bloom faster than another, or the ground may be damp from double irrigation; or a given field may display slower growth sometime during the season. We could increase the number of days between cuttings and increase tonnage, but the increase in tonnage would be at the expense of quality.

Quality is the factor which we feel helps us through the ups and downs of alfalfa price fluctuations. We utilize about 15% of our hay internally to supply the Dairy division of the company. The balance is sold directly to dairymen or through brokers. Potential customers view the hay in the stackyards where each cutting of a field is sampled for TDN and marked. Price is established based on TDN of properly baled hay. As recently as two years ago dairy customers would ask for hay testing 54% TDN or higher. In 1982 the customer seems to be asking for 55% TDN or higher alfalfa hay; more emphasis on quality than in the past.

The 1982 Total Digestible Nutrients (TDN) quality as a percent of tons by cutting and total tons from our ranch are presented in Table 1. Note the usual TDN decline which occurs during the 3rd and 4th cuttings; this is hay which was cut during higher temperature periods. Some of the fields were cut in 26 days to reduce bloom during the 3rd and 4th cuttings. Twenty-five percent of all hay produced during the season was in the 56+ TDN range, and sixty percent of all tonnage was above 55% TDN for the entire year. Approximately eighty-five percent of all tonnage for the entire year was above 54% TDN which is the beginning of the Excellent Classifications in the California test. The 4th cutting displayed the lowest test values of all cuttings.

We have briefly discussed some factors which effect the profitable production of high quality alfalfa. The controllable factors of farm practices, the effect of nature's non-controllable influence, and the marketing of the product. We feel that quality results in improved profit per acre and provides the kind of hay our customers are asking for.

TOTAL DIGESTIBLE NUTRIENTS PERCENT OF TONNAGE BY CUTTING  
AND PERCENT OF TOTAL TONS

PERCENT OF TONNAGE

<u>TDN*</u>	<u>1st CUT</u>	<u>2nd CUT</u>	<u>3rd CUT</u>	<u>4th CUT</u>	<u>5th CUT</u>	<u>6th CUT</u>	<u>TOTAL</u>
56.0 +	64.0	29.2	6.8	0.0	24.1	12.1	24.9
55.0 - 55.9	36.0	34.1	44.1	4.9	46.8	66.3	34.9
54.0 - 54.9	0.0	21.0	42.5	48.3	21.1	0.0	24.7
53.0 - 53.9	0.0	15.7	6.6	39.9	8.0	21.6	14.2
52.0 - 52.9	0.0	0.0	0.0	6.9	0.0	0.0	1.3

\* California Method of Analysis